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EXAMINER	
KHUONG, LEE T	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/920,944	TZENG, SHRJIE	
	Examiner	Art Unit	
	Lee Khuong	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/3/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10,11,13-17,20-29,32,33 and 35* is/are rejected.

7)☒ Claim(s) *8-9,12,18,19,30-31 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/8/01, 4/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 15, 16, 18, 20 and 21 are objected to because of the following informalities: A dependant method claim that is depending on an independent apparatus claim is improper. Appropriate correction is required.

2. Claims 25 and 26 are objected to because of the following informalities: A dependant apparatus claim that is depending on an independent method claim is improper. Appropriate correction is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

4. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

5. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-5, 7, 13-17, 22-29, 35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. US 6,850,542 in view of Mangin et al. (US 6,704,280) hereinafter is referred as Mangin.

Regarding claims 1, 2, 24 and 25, 542' teaches a network device having a plurality of ports for switching data packets between network ports of said plurality of ports, said network device comprising: a first switch having a first group of ports which are a subset of said plurality of ports and are numbered by a first numbering scheme; a second switch having a second group of ports which are a subset of said plurality of ports and are numbered by a second numbering scheme different from said first numbering scheme; a CPU coupled to said first switch and said second switch and configured to control said first switch and said second switch; and wherein a first link port of said first group of ports is coupled to a second link port of said second group of ports, and said first link port and said second link port are configured to relay said rate control messages to each other; an address resolution logic (ARL) configured to perform address resolution of data packets received at said network ports of said plurality of ports and to switch

data packets from a first network port of said plurality of ports to a second network port of said plurality of ports.

542' does not expressly teach a first rate control logic for performing rate control functions related to switching data packets between said network ports, and a first local communications channel for transmitting messages between said first group of ports and said rate control logic, said first switch being configured to generate rate control messages based on data packet traffic to said first group of ports; and a second rate control logic for performing rate control functions related to switching data packets between said network ports, and a second local communications channel for transmitting messages between said second group of ports and second rate control logic, said second switch being configured to generate rate control messages based on data packet traffic to said second group of ports.

Mangin teaches a first rate control logic (Fig. 3, 370, ***a first policing function***) for performing rate control (***pause time***) functions related to switching data packets between said network ports (Fig. 3, ***an interconnecting link between the core switch 340 and the edge switch 320***) (see col. 4, lines 12-19, ***the first policing function 370 is capable of controlling data rate in/out of the core switch 340***), and a first local communications channel for transmitting messages between said first group of ports (see Fig. 4, col.4, lines 20-48, ***a PAUSE frame contains a source and a destination address; therefore, it can be transmitted between ports within a core switch, an edge switch or between the two switches 340 and 320***) and said rate control logic (see col. 4, lines, 12-19, lines 49-52, ***the first policing function 370 communicates to control the data rate in/out of the core switch 340 to the input ports of the edge switch 320 and the network 350***), said first switch being configured to generate rate control messages based

on data packet traffic to said first group of ports (see col. 4, lines 12-26, lines 49-52, ***a communication channel is provided to communicate data rate and messaging information using PAUSE frames between the first data port interface of the core switch 340 and the second data port interface of the edge switch 320***); and a second rate control logic (Fig. 3, 360, ***a second policing function***) for performing rate control functions related to switching data packets between said network ports (see col. 4, lines 12-26, ***the second policing function 360 is capable of controlling data rate in/out of the edge switch 320 to communicate with its edge devices 310_1-310_M***), and a second local communications channel for transmitting messages between said second group of ports and second rate control logic (see Fig. 4, col. 3, lines 57-65, col.4, lines 20-48, ***a PAUSE frame contains a source and a destination address; therefore, it can be transmitted between ports within a core switch, an edge switch or between the two switches 340 and 320. The second pausing logic 324 uses PAUSE frames for low control to enforce traffic contracts of link 330_1-330_M***), said second switch being configured to generate rate control messages based on data packet traffic to said second group of ports (see col. 4, lines 12-26, lines 49-52, ***a communication channel is provided to communicate data rate and messaging information using PAUSE frames between the first data port interface of the core switch 340 and the second data port interface of the edge switch 320. Both edge switch 320 and core switch 340 are implemented with respective policing functions 360 and 370 residing in data link layers. Hence, the policing functions are capable of determining the duration of an interval to police at a given rate between the two switches and the clients that are connected to the edge switch***)

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ the "MAC control frame" between inter-switches as taught by Mangin into '542 to arrive the claimed invention as specified in claims 1, 2, 24 and 25.

The suggestion/motivation for doing so would have been to provide enforcement of bandwidth contracts using data link layer functionality (see col. 2, lines 36-38).

Regarding claims 3 and 26, Mangin teaches wherein said first link port is configured to receive a first local rate control message from said first local communications channel within said first switch (see col. 3, lines 48-56, col. 4, lines 2-65, ***the output port from the core switch 340 links to the input port of the edge switch 320 and supports the transmission or reception of information over a full-duplex medium; therefore, it can transmit or receive rate control message between the two pausing logics 324 and 344 of the edge switch and the core switch, respectively***), to generate a first MAC control frame based on said first local rate control message (see col. 4, lines 12-26, lines 49-52, ***a communication channel is provided to communicate data rate and messaging information using PAUSE frames between the first data port interface of the core switch 340 and the second data port interface of the edge switch 320***) and to relay said first MAC control frame to said second link port (see col. 4, lines 20-48, ***since the PAUSE frame includes a destination address 410, the destination address 410 may be a unicast/multicast address that targets a specific second data port interface of the edge switch 320 in Fig. 3 and enforces the contract policy of total bandwidth the edge switch can used via the output port from the core switch 340. In other words, the PAUSE frames generates from the PAUSING logic 344 are capable of enforcing its service contract between the core switch and the edge***

switch); and said second link port is configured to receive a second local rate control message from said second local communications channel within said second switch (see col. 3, lines 48-56, col. 4, lines 2-65, ***the output port from the core switch 340 links to the input port of the edge switch 320 and supports the transmission or reception of information over a full-duplex medium; therefore, it can transmit or receive rate control message between the two pausing logics 324 and 344 of the edge switch and the core switch, respectively***), to generate a second MAC control frame based on said second local rate control message and to relay said second MAC control frame to said first link port (see col. 4, lines 20-48, ***since the PAUSE frame includes a destination address 410, the destination address 410 may be a unicast/multicast address targeting a specific data port interface of the core switch 340 in Fig. 3 and enforcing the contract policy of total bandwidth the core switch 340 can used to communicate with the port of the edge switch 320***).

Regarding claims 4 and 27, 542' teaches essentially the same subject matter of claim 2 in '542.

Regarding claims 5 and 28, Mangin teaches wherein said second link port (Fig. 3, ***the ingress link port of the edge switch 320 to receive a PAUSE frame from the egress link port of the core switch 340***) is configured to receive said first MAC control frame from said first link port (see col. 4, lines 21-48, col. 5, lines 48-64, ***a PAUSE frame includes the destination address of the edge switch 320 and enforcing the bandwidth contract between the core and the edge switches***), to extract said first local rate control message from said first MAC control frame

(see col. 5, lines 65-67, col. 6, lines 1-14, ***the data link layer determines if the traffic contract has been exceeded, the switching device transmits a JAM packet to cause a collision on the Ethernet-based link and extracts the pause time from the MAC control/PAUSE frame***), and to relay said first local rate control message to said second local communications channel within said second switch (see col. 4, lines 24 and 27, ***the destination address 410, Fig. 4, includes the destination of the second switch the first local rate control message is going to be extracted at the MAC control opcode 440, Fig. 4. Opcode is to be used for identifying the various rate control status notifications, COS, HOL, etc...***); and said first link port (Fig. 3, ***the egress link port of the edge switch 320 to send a PAUSE frame to the ingress link port of the core switch 340***) is configured to receive said second MAC control frame from said second link port (see col. 4, lines 21-48, col. 5, lines 48-64, ***a PAUSE frame includes the destination address of the edge switch 320 and enforces the bandwidth contract between the core and the edge switches***), to extract said second local rate control message from said second MAC control frame (see col. 5, lines 65-67, col. 6, lines 1-14, ***the data link layer determines if the traffic contract has been exceeded, the switching device transmits a JAM packet to cause a collision on the Ethernet-based link and extracts the pause time from the MAC control/PAUSE frame***), and to relay said second local rate control message to said first local communications channel within said first switch (see col. 4, lines 24 and 27, ***the destination address 410, Fig. 4, includes the destination of the second switch the first local rate control message is going to be extracted at the MAC control opcode 440, Fig. 4. Opcode is to be used for identifying the various rate control status notifications, COS, HOL, etc...***).

Regarding claims 7 and 29, 542' and Mangin teach all limitations set forth in the rejections of claims 5 and 28.

Mangin fail to teach wherein said first local communications channel comprises an S channel of said first switch, and said second local communications channel comprises an S channel of said second switch.

Mangin does disclose that there is a local communication channel for the MAC control frame between the core switch 340 and its port as well a local communication channel for the MAC control frame between the edge switch 320 and its port.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to design the local communications channel using any other type of channel such as S channel and to incorporate the local communications channel as taught by Mangin into '542 to arrive the claimed invention as specified in claims 7 and 29.

The suggestion/motivation for doing so would have been to provide enforcement of bandwidth contracts using data link layer functionality (see col. 2, lines 36-38).

Regarding claims 13 and 35, Mangin teaches wherein said second link port is configured to send a local rate control message (***a pause time***) received at said second link port to said second communications channel only when said source is said first switch (see col. 4, lines 20-39, ***the MAC control frame generates from the first core switch 340 includes the source address 420. The edge switch 320 will be able to unencapsulate and determine that the MAC control frame generated from the core switch 340***); and said first link port is configured to send a local rate control message received at said first link port to said first communications

channel only when said source is said second switch (see col. 4, lines 20-39, ***similar to the limitation above of claim 13. Please see the above explanation***).

Regarding claim 14, 542' teaches a method for communication of rate control messages between a plurality of switches, said method comprising the steps of: designating a first plurality of ports of a first switch by a first numbering scheme; designating a second plurality of ports of a second switch by a second numbering scheme which is different from said first numbering scheme; coupling a first link port of said first plurality of ports to a second link port of said second plurality of ports.

542' does not expressly teach configuring said first switch to generate a rate control message and to relaying said rate control message to said first link port; and configuring said first link port to generate a MAC control frame based on said rate control message and relay said MAC control frame to said second link port.

Mangin teaches configuring said first switch to generate a first MAC control frame and to relay said first MAC control frame to said second link port (see col. 4, lines 12-52, ***PAUSE frames are being generated from the first core switch 340 to control the data being transferred between the core switch 340 and the edge switch 320 and vice versa***); and configuring said first link port to generate a second MAC control frame based on said second local rate control message and to relay said second MAC control frame to said first link port (see col. 4, lines 12-52, col. 5, lines 65-67, col. 6, lines 1-14, ***since the PAUSE frame includes a destination address 410, the destination address 410 may be a unicast/multicast address that targets a specific data port interface of the core switch 340 in Fig. 3 and enforces the contract policy of***

total bandwidth the core switch 340 can used to communicate with the port of the edge switch 320).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ the "MAC control frame" between inter-switches as taught by Mangin into '542 to arrive the claimed invention as specified in claim 14.

The suggestion/motivation for doing so would have been to provide enforcement of bandwidth contracts using data link layer functionality (see col. 2, lines 36-38).

Regarding claim 15, Mangin teaches wherein said configuring said first link port step includes configuring said first link port step to generate a MAC control frame including data relating to a congested port of said first plurality of ports (see Fig. 8, col. 5, lines 65-67, col. 6, lines 1-14, ***PAUSE frames from the core switch 340 will be generated to the edge switch if it exceeds its bandwidth service contract***).

Regarding claim 16, Mangin teaches configuring said second link port to extract said rate control message from said MAC control frame (see col. 5, lines 65-67, col. 6, lines 1-14, ***to unencapsulate and extract the pause time from the MAC control/PAUSE frame***) and to send said rate control message to a second communications channel within said second switch (see col. 4, lines 20-39, ***the MAC control frame generates from the first core switch 340 includes the destination address 410 of the second edge switch 320 and the pause time in the opcode field which the second switch will be extracting/unencapsulating from***).

Regarding claim 17, this claim has similar limitations of claim 16. Therefore, it is rejected under Mangin for the same reasons set forth in the rejection of claim 16.

Regarding claim 22, Mangin teaches configuring said second link port to determine the source of said rate control message based on said source bit (see col. 4, lines 20-39, ***the MAC control frame generates from the first core switch 340 includes the source address 420. In 802.3x standard, the source address is a reserved bit and also is the source address of the MAC control frame. The destination address 410 of the MAC control frame generated from the core switch 340 to the edge switch 320 is unencapsulated at the edge switch 320 where its port is configured to determine/unencapsulated the source address of the MAC control frame***).

Regarding claim 23, Mangin teaches configuring said second link port to extract said rate control message (***the pause time***) from said MAC control frame (see col. 5, lines 65-67, col. 6, lines 1-14, ***to unencapsulate and extract the pause time from the MAC control/PAUSE frame***) and to send said rate control message to a second communications channel within said second switch when said source is determined to be said first switch (see col. 4, lines 20-39, ***the MAC control frame generates from the first core switch 340 includes a destination address 410 of the second edge switch 320 and a source address of the core switch 340. The edge switch 320 should be able to unencapsulate the MAC control frame of the core switch 340 and determine that the frame came from the source address of the core switch 340***).

7. Claims 6, 10-11, 20-21 and 32-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. US 6,850,542 in view of Mangin and further in view of Dreyer et al. (US 6,098,103) hereinafter is referred as Dreyer.

Regarding claim 6, '542 and Mangin teach all limitations set forth in the rejection of claim 3.

'542 and Mangin fail to teach wherein said first said first link is configured to generate MAC control frame using reserved bits of said MAC control frame to define said first local rate control, and said second link port is configured to generate said second MAC control frame using reserved bits of said MAC control frame to define said second local rate control message.

Dreyer teaches using reserved bits of a MAC control frame to define a local rate control (see Fig. 5A, col. 13, lines 24-55, ***using opcode to define pausing time of a MAC control frame***).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ configuring a MAC control frame using reserved bits as taught by Dreyer into '542 and Mangin to arrive the claimed invention as specified in claim 6.

The suggestion/motivation for doing so would have been to provide a capability of enabling a MAC Control Frame (see col. 13, lines 16-22).

Regarding claims 10 and 32, Dreyer teaches a switch is configured to generate rate control messages include a COS queue status notification (see Fig. 1 and Fig. 2, col. 7, lines 21-

27, ***a MA_CONTROL.indication primitive defines the control status indications which includes opcode***).

Regarding claims 11 and 33, Dreyer teaches a switch is configured to generate rate control messages include a HOL queue status notification see Fig. 1 and Fig. 2, col. 7, lines 21-27, col. 9, lines 36-58, ***MAC control frame is generated when the memory is full and a MA_CONTROL.indication primitive defines the control status indications which includes opcode***).

Regarding claim 20, this claim has similar limitations of claim 10. Therefore, it is rejected under Dreyer for the same reasons set forth in the rejection of claim 10.

Regarding claim 21, this claim has similar limitations of claim 11. Therefore, it is rejected under Dreyer for the same reasons set forth in the rejection of claim 11.

Allowable Subject Matter

8. Claims 8-9, 12, 18-19, 30-31 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kalkunte et al. (US 6,118,761) ; Kalkunte et al. (US 6,108,306) ; Ghanwani et al. (US 6,633,585) ; Ramakrishmman (US 6,167,029); Szczepanek et al. (US 6,690,668); Lenoski et al. (US 6,735,173) are cited to show a System and Method of a Linked Network Switch Configuration.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Khuong whose telephone number is 571-272-3157. The examiner can normally be reached on 9AM - 5PM.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lee T. Khuong
Examiner
Art Unit 2665

ALPUS H. HSU
PRIMARY EXAMINER